

(CFC's). Applicant's invention will serve to provide replacements having substantially no toxicity and zero ozone depletion potentials.

3. Claims 7-9, 11 and 13 have been rejected under 35 U.S.C. 103 as unpatentable over Uchida 4,459,213 and optionally in view of Cohen 3,080,430 and further optionally in view of Smits 4,954,119.

Uchida relates to improving foam fire-extinguishing compositions that comprise a protein or a surface-active agent. To increase the length of time the formed foam remains on the surface of the burning material and to avoid the necessity of a separate foaming device, Uchida includes a liquid polyhydroxy compound or an aqueous solution of at least one polyhydroxy compound and one or more halogenated hydrocarbons.

As the Examiner points out, Uchida discloses the use of 35 to 90%, based on the total weight of the blend with the protein or protein decomposition product and the liquid polyhydroxy compound, of the halogenated hydrocarbon. The "preferred" halogenated hydrocarbons are those having 1 to 4 carbon atoms and a boiling point of -50°C to 150°C, i.e., halogenated methanes, ethanes, propanes and butanes, having boiling points from well below the freezing point of water to well above its boiling point. Among the 64 specific halogenated hydrocarbons disclosed in column 2, line 41- column 3, line 8, are tetrafluoroethane, halogenated propanes or propylenes. The only examples in Uchida of formulations and using the emulsion compositions of his invention utilize a dibromotetrafluoroethane (Halon 2402) in conjunction with the protein (sodium caseinate) and the polyhydroxy compound (glycerin) in Examples 1 and 3 and Halon 2402 and carbon tetrachloride with the same protein and an aqueous sugar solution in Example 2.

Applicant contends that these disclosures in Uchida would not suggest Applicant's invention to one of ordinary skill in this art. As the Examiner has recognized,

it would require selecting the third component from a basic fire-extinguishing foam of Uchida's components (1) and (2); and then selecting specific non-bromine containing fluoro-substituted propanes, each having at least 6 fluorine atoms, from a disclosure of 64 halogenated hydrocarbons, most of which contain bromine or (from perhaps thousands if we consider the disclosure of those halogenated hydrocarbons having 1-4 carbon atoms). Applicant requests the withdrawal of the rejection based on Uchida alone.

Cohen discloses the preparation of $\text{CF}_2\text{HCF}_2\text{CH}_2\text{X}$ where X = chlorine or bromine. Cohen also discloses that these two compounds are useful for a wide variety of purposes (column 2, lines 8-17). In particular, Cohen suggests that these compounds are useful as inhalation anesthetics. He also mentions that they could be used as fire extinguishants (column 2, lines 47-57). The Examiner points out that Cohen's compounds are not exactly identical to any of Applicant's claimed halogenated propanes. However, he does deem them homologues to the claimed compounds.

Cohen discloses $\text{CF}_2\text{HCF}_2\text{CH}_2\text{Cl}$ and $\text{CF}_2\text{HCF}_2\text{CH}_2\text{Br}$ only. The halogenated propanes of the claimed invention contain a minimum of 5 fluorine atoms and NO bromine atoms per molecule. This offers specific advantages in the areas of volatility, extinguishment efficiency (lower concentrations required), environmental acceptability, lower toxicity, etc. Thus, it is clear that the halogenated propanes of the claimed invention are NOT homologues of the Cohen propanes.

Smits teaches foaming systems for rigid urethane and isocyanurate foams. Smits includes some of the halogenated propanes covered by Applicant's claims. The Examiner states that these compounds are taught to be "inert" (column 4, lines 54-68) and have boiling points low enough to be gases at room temperature. Further, the Examiner states that these blowing agent "properties are

known by those of ordinary skill in the art to be useful properties for fire extinguishing agents."

Smits also says in column 4, lines 57-58, that the suitable organic compounds are "essentially inert under the conditions employed when preparing a polyurethane foam". Smits continues to exemplify "such organic compounds as hydrocarbons including alkanes, alkenes, cycloalkanes", etc. (see column 4, lines 61-63). These compounds meet the inert and boiling point criteria outlined by the Examiner for those skilled in the art. These compounds are also extremely flammable, thus emphasizing the criteria known very well by those skilled in the art: the properties that make for a good blowing agent are not necessarily all those that are required for a good fire extinguisher.

Furthermore, Smits lists as his preferred blowing agents: CFC-11, HCFC-141b, HCFC-123, HCFC-142b, i.e., all ethanes! The specific propanes of Applicant's claims do not appear in Smits' disclosure. The withdrawal of Smits is respectfully requested.

Applicant has noted that the rejection based on Uchida is "optionally in view of Cohen and further optionally in view of Smits with or without Cohen". Applicant requires further explanation. Does the Examiner suggest that the tetrafluoropropane (which is not within Applicant's claims) of Cohen be substituted for everything required in Uchida's foam fire-extinguishing compositions including the protein or surface active agent and the polyhydroxy compound and the halogenated hydrocarbon to form Applicant's claimed composition? Does he also suggest the blowing agents for manufacturing rigid polyisocyanurate foams in Smits be substituted for all or part of Uchida's foam fire-extinguishing compositions to arrive at Applicant's claimed compositions? Applicant believes a further explanation is necessary.

4. Claims 10 and 12 have been rejected over Uchida in view of either Rainaldi or Kung. The Examiner

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states that "it would have been obvious to one having ordinary skill in the art to add a propellant to the compositions of Uchida using the teachings of Rainaldi and Kung as motivation."

Applicant traverses this rejection. Adding a propellant to the compositions of Uchida would not suggest the compositions of Claims 10 and/or 12. The reasons are those given in paragraph 3 herein.

5. The rejection based on 35 U.S.C. 112 should be withdrawn in view of the present amendment. "Said enclosed area" has been deleted. "Said fluoro-substituted propane" has been substituted for "said propane". And "consisting essentially of" has been substituted for "comprising".

In view of the foregoing remarks when read in conjunction with the amendment, the withdrawal of the rejection and the allowance of the modestly limited claims would seem to be in order. Such action is earnestly solicited.

Respectfully submitted,

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